IN THE CLAIMS:

Please cancel Claims 2 and 30 without prejudice or disclaimer and amend Claims 1, 24, and 29 as follows:

1. (Currently Amended) A watercraft comprising a hull, a propulsion unit supported relative to the hull, a steering system configured to influence a direction of travel of the watercraft, the steering system comprising an operator steering control configured to rotate a steering shaft between a first maximum turning position and a second maximum turning position to permit an operator of the watercraft to control a position of the steering system, a force detection assembly configured to sense a force further applied to the operator steering control after the operator steering control is turned to either of the first and second maximum turning positions, and a control system configured to increase an output of the propulsion unit and to vary the increased output of the propulsion unit in proportion to ~~when the force~~ variations in a magnitude of the forces further applied to the operator steering control ~~exceeds a predetermined threshold~~ without further movements of the operator steering control.

2. (Canceled)

3. (Original) The watercraft of Claim 1, wherein the operator steering control is a handlebar assembly and the propulsion unit is a water jet propulsion unit, the water jet propulsion unit comprising a steering nozzle adapted to be turned along with turning of the handlebar assembly.

4. (Withdrawn) The watercraft of Claim 3, additionally comprising a pair of deflectors supported by the steering nozzle for pivotal motion about a generally vertical axis and straddling a flow of water issuing from the steering nozzle in a neutral position, wherein the control system is configured to rotate the pair of deflectors relative to the steering nozzle to divert a flow of water issuing from the steering nozzle in relation to the magnitude of the force.

5. (Original) The watercraft of Claim 1, wherein the steering system comprises a fixed stop and a moveable stop, the movable stop fixed for movement with the steering shaft, the fixed stop and the movable stop contact one another to define the first and second maximum turning positions, and wherein the force detection assembly comprises a first load receiving element and a second load receiving element associated with one of the fixed and movable stops, and at least one sensor, the first load receiving

element configured to receive a compressive load when force is further applied to the operator steering control after the operator steering control is turned to the first maximum turning position, the second load receiving element configured to receive a compressive load when force is further applied to the operator steering control after the operator steering control is turned to the second maximum turning position, the at least one sensor configured to produce an output signal corresponding to a load applied to either of the first and second load receiving elements.

6. (Original) The watercraft of Claim 5, wherein the force detection assembly is a magnetostrictive detection system, the at least one sensor configured to detect a change in a magnetic permeability of either of the first and second load receiving elements.

7. (Original) The watercraft of Claim 5, wherein the first and second load receiving elements are constructed from a conductive rubber material and the at least one sensor is configured to detect a change in an electrical resistance of either of the first and second load receiving elements.

8. (Withdrawn) The watercraft of Claim 5, wherein the movable stop comprises a first stop surface and a second stop surface and the first and second load receiving elements are supported within an integral housing, wherein the housing defines, at least in part, the fixed stop.

9. (Withdrawn) The watercraft of Claim 8, wherein axes of the first and second load receiving elements are arranged to form a V-shape when viewed along an axis of the steering shaft, the first stop surface and the second stop surface move along an imaginary circle centered about the axis of the steering shaft, and wherein the axes of the first and second load receiving elements are tangential to the imaginary circle.

10. (Withdrawn) The watercraft of Claim 8, wherein the integral housing is constructed of a non-magnetic material.

11. (Withdrawn) The watercraft of Claim 8, wherein the first load receiving element, the second load receiving element and the at least one sensor are sealed within the housing, with the exception of a contact surface of each of the first and second load receiving elements, by an elastically-deformable synthetic resin material.

12. (Withdrawn) The watercraft of Claim 11, additionally comprising an electric circuit board electrically connected to the force detection assembly, wherein the electric circuit board is housed within the integral housing.

13. (Withdrawn) The watercraft of Claim 12, wherein the electric circuit board is sealed within the integral housing by a shock absorbing material.

14. (Withdrawn) The watercraft of Claim 1, wherein the steering system additionally comprises a linkage assembly configured to define the first and second maximum turning positions, the linkage assembly including a first end movable with the steering shaft and a second end fixed with respect to the hull, the force detection assembly including at least one sensor configured to produce an output signal corresponding with a tension of the linkage assembly.

15. (Withdrawn) The watercraft of Claim 14, wherein the force detection assembly is of a magnetostrictive type, wherein a linkage member of the linkage assembly is constructed of a material that changes in magnetic permeability in response to a change in a tensile load applied to the material, and the at least one sensor is configured to produce an output signal corresponding to a magnetic permeability of the linkage member.

16. (Withdrawn) The watercraft of Claim 1, wherein the steering system additionally comprises a linkage assembly configured to define the first and second maximum turning positions, the linkage assembly including a first end movable with the steering shaft and a second end fixed with respect to the hull, the force detection assembly including at least one load receiving element and at least one sensor, the linkage assembly configured to apply a compressive force to the at least one load receiving element, wherein a magnitude of the compressive force is reduced when force is further applied to the operator steering control after the operator steering control has been turned to either of the first and second maximum turning positions, and wherein the at least one sensor is configured to produce an output signal corresponding with a compressive force applied to the at least one load receiving element.

17. (Withdrawn) The watercraft of Claim 1, wherein the force detection assembly comprises a load receiving element and at least one sensor, the load receiving element configured to be rotated with the steering shaft about an axis of the steering shaft and to receive a torsional load when force is further applied to the operator steering control after the operator steering control is turned to either of the first and second maximum turning positions, the at least one sensor configured to produce an output signal corresponding with a torsional load applied to the at least one load receiving element.

18. (Withdrawn) A watercraft comprising a hull, a water jet propulsion unit supported relative to the hull and including a steering nozzle, a steering system configured to influence a direction of travel of the watercraft, the steering system comprising an operator steering control movable between a first maximum turning position and a second maximum turning position and configured to permit an operator of the watercraft to control a position of the steering nozzle, a force detection assembly configured to sense a force further applied to the operator steering control after the operator steering control is turned to either of the first and second maximum turning positions, a pair of deflectors supported by the steering nozzle for pivotal motion about a generally vertical axis and straddling a flow of water issuing from the steering nozzle in a neutral position, and a control system configured to rotate the pair of deflectors relative to the steering nozzle to divert a flow of water issuing from the steering nozzle when the force further applied to the operator steering control exceeds a predetermined threshold.

19. (Withdrawn) The watercraft of Claim 18, wherein the control system is configured to rotate the pair of deflectors through an angle proportional to a magnitude of the force further applied to the operator steering control.

20. (Withdrawn) A watercraft comprising a hull, a propulsion unit supported relative to the hull, a steering system configured to influence a direction of travel of the watercraft, the steering system comprising an operator steering control movable between a first maximum turning position and a second maximum turning position and configured to permit an operator of the watercraft to control a position of the steering system, a force detection assembly configured to sense a force further applied to the operator steering control after the operator steering control is turned to either of the first and second maximum turning positions, at least one rudder supported by the propulsion unit for pivotal motion about a generally horizontal axis from a first position not providing a substantial steering force to a second position configured to provide a steering force with a body of water on which the watercraft is operated, and a control system configured to rotate the at least one rudder toward the second position when the force further applied to the operator steering control exceeds a predetermined threshold.

21. (Withdrawn) The watercraft of Claim 20, wherein the control system is configured to rotate the at least one rudder through an angle proportional to a magnitude of the force further applied to the operator steering control

22. (Withdrawn) The watercraft of Claim 20, wherein the operator steering control is a handlebar assembly and the propulsion unit is a water jet propulsion unit, the water jet propulsion unit comprising a steering nozzle adapted to be turned along with turning of the handlebar assembly.

23. (Withdrawn) The watercraft of Claim 22, wherein the at least one rudder comprises a pair of rudders straddling a flow of water issuing from the steering nozzle.

24. (Currently Amended) A steering assist method for a watercraft having an operator steering control configured to be turnable between but not substantially beyond maximum port and starboard turning positions and a propulsion unit, the method comprising determining when the operator steering control has been turned to either one of a port or starboard maximum turning position and when a magnitude of a further steering force that has been applied to the operator steering control is greater than a predetermined magnitude, detecting variations in the magnitude of a force above the predetermined magnitude further applied ~~to an~~ to the operator steering control after the operator steering control is ~~turned to a~~ turned to one of the maximum turning positions~~position~~, and ~~increasing~~varying a steering force of the watercraft in proportion with the variations in the magnitude of force further applied to the operator steering control above the predetermined magnitude ~~when the force further applied to the operator steering control exceeding a predetermined threshold~~.

25. (Original) The method of Claim 24, wherein the steering force is increased in proportion to a magnitude of the force.

26. (Original) The method of Claim 24, wherein the step of increasing a steering force involves increasing an output of a propulsion unit of the watercraft.

27. (Withdrawn) The method of Claim 24, wherein the step of increasing a steering force involves diverting a flow of water issuing from a steering nozzle of a water jet propulsion unit of the watercraft.

28. (Withdrawn) The method of Claim 24, wherein the step of increasing a steering force involves lowering at least one rudder into a position to contact a body of water in which the watercraft is operating.

29. (Original) A watercraft comprising a hull, a propulsion unit supported relative to the hull, a steering system configured to influence a direction of travel of the watercraft, the steering system comprising an operator steering control configured to rotate

a steering shaft between port and starboard maximum steering positions, the steering system being configured such that the operator steering control cannot be rotated substantially beyond the port and starboard maximum steering positions, a control system configured to increase an output of the propulsion unit ~~when~~ after the operator steering control ~~steering system is rotated beyond a predetermined position~~has been rotated to either of the port and starboard maximum steering positions and a further force has been applied, the control system including means for varying the output of the propulsion unit in proportion with changes in magnitude of the further force applied to the operator steering control~~, and means for providing a tactile signal to a rider of the watercraft corresponding to the predetermined position~~.

30. (Canceled)

COMMENTS

Claims 1 and 3-29 remain pending in the present application, Claims 2 and 30 having been canceled without prejudice or disclaimer, Claims 1, 24, and 29 having been amended, and Claims 4, 8-23, 27, and 28 having been withdrawn from consideration. The paragraphs of the specification set forth above include markings to show the changes made by way of the present amendment, deletions being in ~~strikeout~~ and additions being underlined.

In response to the Office Action mailed March 3, 2005, Applicants respectfully request the Examiner to reconsider the above-captioned application in view of the foregoing amendments and the following comments.

Amendments To Specification Address Noted Informalities

The foregoing amendments to the specification correct the informalities noted by the Examiner. In particular, with respect to the subject matter of Claim 7, Applicants have amended the paragraph beginning at line 4 of page 10 to include the language from Claim 7. Because Claim 7 was part of the original application as filed, no new matter has been introduced.

With respect to the informality noted by the Examiner in the paragraph beginning at line 13 on page 23 of the present specification, Applicants have changed the phrase "assembly 250" to "assembly 251."

The above noted amendments merely correct minor formalistic errors, and thus, no new matter has been introduced. Entry of these amendments is respectfully requested.

The Proposed Combination Of Matsuda et al./Morrison Does Not Make Obvious Claims 1-3, 5, 7, 24-26, And 29-30

Claims 1-3, 5, 7, 24-26, and 29-30 stand rejected under 35 U.S.C. § 103(a) as being obvious over Matsuda, et al. in view of Morrison. Applicants respectfully traverse the present rejection. However, in order to expedite prosecution of the present application, Applicants have amended Claims 1, 24, and 29, and have canceled Claims 2 and 30 without prejudice or disclaimer. Applicants expressly reserve the right to further prosecute the original version of Claims 1-3, 5, 7, 24-26, and 29-30 through continuation practice.

Briefly, some of the inventions disclosed in the present application are directed to steering systems for watercrafts, and more particularly, systems for providing additional steering functionality for watercraft. For example, as noted in the summary of the invention of the present application,

> Another aspect of at least one of the inventions disclosed herein includes the realization that the force that a rider applies to a steering member can be used to control thrust, so as to make turning maneuvers easier to perform. For example, a watercraft can include a sensor to detect the force applied to the handlebar or steering wheel thereof, and a controller can adjust the thrust generated by the propulsion system in accordance with the detected force. When the additional thrust is triggered, the watercraft will turn more. Thus, the watercraft takes on a more intuitive operation characteristic, *i.e.*, the more force applied by the rider, the more the watercraft will turn.

Present application, page 2, lines 4-11.

Matsuda et al. discloses a watercraft having a handlebar that is rotatable between left and right maximum turning positions, defined by stoppers 32A, 32B, respectively. Matsuda et al., however, fails to teach a steering system which responds to the force applied to the handlebar, after the handlebar has been turned to the maximum turning position, so as to vary the turning force or output of the propulsion unit in accordance with variations of the force applied to the handlebars.

Further, nothing in Matsuda et al. teaches that such performance would be desirable. Rather, Matsuda et al. only teaches a predetermined response to the turning of the handlebars. Nothing in Matsuda et al. teaches that the output of the propulsion system can be varied in accordance with changes in the force applied to the handlebars after the handlebars have been turned to their maximum turning positions.

Morrison et al. discloses a load cell 30 that can be made with conductive rubber. It was the Examiner's position that it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the stops 32A and 32B of Matsuda et al. with the load cells 30 of Morrison et al.

However, nothing in Morrison et al. or Matsuda et al. suggests that the resulting steering system would benefit from the added functionality of varying the output of the propulsion system in proportion to variations of the force applied to the handlebars after they have been turned to the maximum turning positions.

Further, Applicants submit that the Morrison reference is not analogous prior art and thus should not be available for a combination with the Matsuda et al. reference for application against claims that were cite "a watercraft," or "a steering assist method for a watercraft."

Along these lines, Applicants wish to note that it has long been established that "to rely on a reference under 35 U.S.C. § 103, it must be analogous prior art." Additionally, it has long been established that "[t]he Examiner must determine what is 'analogous prior art' for the purpose of analyzing the obviousness of the subject matter at issue. In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." M.P.E.P. § 2141.01(a) (quotes in original).

Firstly, the Morrison reference is not in the Applicants' field of endeavor. Rather, the Morrison reference is directed to a cyclic power monitor that measures a cyclically applied force applied by animal muscle power to a device and calculates the work done by the application of the force. For example, as noted in the abstract of the Morrison reference, "[t]he time between cyclic applications of the force is calculated to produce a value which may be used to divide the calculated work to calculate applied power. An indicating device may be employed to indicate departure and applied power from a predetermined value."

As shown in Figure 1 of Morrison, the load cell 30 is positioned on a pedal of a bicycle. Nothing in the Morrison reference discloses or suggests that any type of load cell should be applied to a steering handlebar of the bicycle or a watercraft.

Thus, Morrison is clearly not in the field of the endeavor of the Applicants' of the present Application. Rather, the field of endeavor of the present Application is directed to steering systems of watercraft. Clearly, the Morrison reference, which teaches a cyclic power monitor, is not in the field of endeavor of steering systems for watercraft. For example, nothing in the record would lead one to believe that the present Applicants would need to determine any type of calculation associated with the power required to manipulate the handlebar of a watercraft.

Further, the Morrison reference is not reasonably pertinent to the particular problem with which the present inventors were concerned. Rather, the particular problem addressed by the inventors of the present application is related to providing a more intuitive response by the steering system of a watercraft. The Morrison reference, in contrast, is directed to a cyclic power monitor. Thus, the issues in Morrison are not reasonably pertinent to the challenges faced by the present inventors in inventing a more intuitive steering system for a watercraft.

Thus, Applicants submit that the Morrison reference cannot be relied upon as a reference for rejecting the above-noted claims under 35 U.S.C. § 103..

Even if Morrison can be used as a reference to reject the above- noted claims under 35 U.S.C. § 103(a), no obvious combination of these references would result in the inventions recited in Claims 1, 24, and 29. Rather, in contrast, Claim 1 now recites, among other recitations, "a control system configured to increase an output of the propulsion unit and to vary the increased output of the propulsion unit in proportion to variations in a magnitude of the forces further applied to the operator steering control without further movements of the operator steering control." Similarly, Claim 24 now recites, among other recitations, a "steering assist method for a watercraft having an operator steering control configured to be turnable between but not substantially beyond maximum port and starboard turning positions and a propulsion unit, the method comprising determining when the operator steering control has been turned to either one of a port or starboard maximum turning position and when a magnitude of a further steering force that has been applied to the operator steering operator is greater than a predetermined magnitude, detecting variations in the magnitude of a force above the predetermined magnitude further applied to the operator steering control after the operator steering control is turned to one of the maximum turning positions, and varying a steering force of the watercraft in proportion with the variations in the magnitude of force further applied to the operator steering control above the predetermined magnitude." Additionally, Claim 29 now recites, among other recitations, "a steering system configured to influence a direction of travel of the watercraft, the steering system comprising an operator steering control configured to rotate a steering shaft between port and starboard maximum steering positions, the steering system being configured such that the operator steering control cannot be rotated substantially beyond the port and starboard maximum steering positions, a control system configured to increase an output of the propulsion unit after the operator steering control has been rotated to either of the port and starboard maximum steering positions and a further force has been applied, the control system including means for varying the output of the propulsion unit in proportion with changes in magnitude of the further force applied to the operator steering control."

As noted above, by providing a steering system that varies the output of the propulsion unit in accordance with variations in the force applied to the handlebars after the handlebars

have been turned to one of the maximum turning positions, the response of the steering system is more intuitive. For example, as further additional force is applied to the handlebars, a proportional amount of additional power or steering force is output by the propulsion unit. Thus, the watercraft steering system performs in a manner that is more intuitive to the operator of the watercraft.

As made clear above, nothing in the cited references suggests such a system. Thus, to the extent that the Examiner's position is that such a system is obvious, Applicants submit that the Examiner is improperly relying on hindsight reasoning.

Thus, Applicants submit that Claims 1, 24, and 29 clearly and nonobviously define over the Matsuda et al. and Morrison references. Further, Applicants submit that Claims 3, 5, 7, and 23-26 also define over the Matsuda et al. and Morrison references, not only because they depend from one of Claims 1 or 24, but also on their own merit.

The Applied Combination Of Matsuda et al./Morrison/Sezaki Does Not Make Obvious Claim 6

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being obvious over Matsuda et al. in view of Morrison, and in further view of Sezaki. Applicants respectfully traverse the present rejection. However, in order to expedite prosecution of the present application, as noted above, Applicants have amended Claim 1. Further, as noted above, Applicants submit that Claim 1 clearly and nonobviously defines over the Matsuda et al. and Morrison references. Thus, Applicants submits that Claim 6 is also patentable, not only because Claim 1 is patentable, but also on its own merit. Applicants expressly reserve the right to further prosecute the original version of Claim 6 through continuation practice.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that the rejections set forth in the outstanding Office Action are inapplicable to the present claims and specification. Accordingly, early issuance of a Notice of Allowance is most earnestly solicited.

The undersigned has made a good faith effort to respond to all of the rejections in the case and to place the claims in condition for immediate allowance. Nevertheless, if any

undeveloped issues remain or if any issues require clarification, the Examiner is respectfully requested to call Applicants' attorney in order to resolve such issue promptly.

Respectfully submitted,

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By: _____

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